ALKALOIDS AND COUMARINS OF *CASIMIROA EDULIS*[1]

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In persuance of a program of phytochemical analysis of medicinal plants (1-3), a 50% aqueous ethanolic extract of the aerial parts of *Casimiroa edulis* Llave et Lex., native to Mexico and Central America and naturalized to India, was found to exhibit anti-inflammatory and diuretic activities in our test screens (4).

The seeds, root, and bark of *C. edulis* have extensively been worked up to yield histamine derivatives, such as N^{α},N^{α}-dimethylhistamine (5), casimidine, and casimiroedin (6-8), having marked hypotensive activity. Zapotidin (9), yet another hypotensive principle from seeds, was characterized as 6-methylimidozo (1,5-C)-tetrahydropyrimidine-5-thione. Furoquinoline alkaloids (10) together with 2-quinolones and 4-quinolones (10,11), such as edulein, edulitin, edulinine, casimiroin, and others, constitute the major part of the total bases. The non-basic constituents consist of coumarins (10-12), flavonoids (12), and limonoids (11) such as zapoterin, casimirolid, deacetylnomilin, and 7-α-obacunol.

The different constituents isolated from the aerial parts of *C. edulis* are being reported here.

EXPERIMENTAL

PLANT MATERIAL.—The plant was grown, collected, and its voucher specimen preserved at the Herbarium of the Horticultural Research Institute, Saharanpur, India.

EXTRACTION AND ISOLATION.—The powdered aerial parts consisting of leaves and twigs (6 kg) of *C. edulis*, after defatting with hexane, were percolated with MeOH, and the crude methanolic extract (150 g) was partitioned between aqueous tartaric acid (8%, 500 ml) and Et_2O (1 liter). The ether-soluble residue (2.3 g) on column chromatography over basic alumina (80 g) (C_6H_6-EtOAc, 90:10) gave isopimpinellin (8 mg), followed by a mixture. Preparative tlc (SiO_2) of the latter, using C_6H_6-EtOAc in different proportions, afforded an additional quantity of isopimpinellin (20 mg), casimiroin (10 mg), skimmianine (8 mg), 1-methyl-2-phenyl-4-quinolone (8 mg), edulein (8 mg), and scopoletin methyl ether (10 mg). The hexane soluble residue from defatting (25 g), when chromatographed over SiO_2 with hexane, gave *n*-hentriacontane (500 mg). Further elution with hexane-C_6H_6 gave carnaubyl cerotate (100 mg), identified by its alkaline hydrolysis to carnaubyl alcohol and cerotic acid. Scopoletin methyl ether, *n*-hentriacontane, and carnaubyl cerotate are being reported for the first time from this source. The basic fraction (1.3 g) on column chromatography over basic Al_2O_3 (60 g) yielded skimmianine (30 mg), 1-methyl-2-phenyl-4-quinoline (25 mg), and edulein (10 mg).

Isopimpinellin and *n*-hentriacontane exhibited diuretic (3) (84% at 125 mg/kg dose in rats compared to chlorothiazide) and anti-inflammatory (30.4% at 100 mg/kg against carrageenin-induced rat hind paw oedema) activities, respectively. The anti-inflammatory activity displayed by *n*-hentriacontane is a new finding. These are thus suggested as active constituents of the leaves and twigs of the plant.

Full details of isolation and identification of compounds are available on request to the senior author.

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